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  (FILE 'HOME' ENTERED AT 14:20:51 ON 29 SEP 2003)

     FILE 'CAPLUS' ENTERED AT 14:21:53 ON 29 SEP 2003
L1          732 S ((MAGNESIUM (1W) FLUORIDE) OR MGF?) (3A) CRYSTAL?
L2           34 S L1 AND MELT?
L3            4 S L1 AND SOLIDIFIC?
L4            3 S L3 NOT L2

     FILE 'INSPEC' ENTERED AT 14:33:32 ON 29 SEP 2003
L5           11 S L2
L6            0 S L3
L7          221 S L1
L8           10 S L7 AND (C (1W) AXIS)

     FILE 'CAPLUS' ENTERED AT 14:37:25 ON 29 SEP 2003
L9          732 S L7
L10          16 S L8
L11          15 S L10 NOT L2
L12          15 S L11 NOT L3

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1-7, 9-35

process 8

NSWER 17 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1969:416749 CAPLUS

DN 71:16749

TI Pure single crystals of alkaline earth fluorides or fluorides of rare earth metals

IN Sfiligoj, Marko; Swinehart, Carl F.

PA Kewanee Oil Co.

SO Ger., 5 pp.
CODEN: GWXXAW

DT Patent

LA German

IC B01J; C01J

CC 70 (Crystallization and Crystal Structure)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1291321		19690327		
PRAI	US		19631009		

AB Fluoride **melts** often give colored crystals unsuitable for optical purposes. If the **melt** is solidified while MnF_3 or CoF_3 vapor is passed over its surface, satisfactory crystals are obtained. A cylindrical container contg. MnF_3 or CoF_3 can be fitted to the inside of the lid of the crucible contg. the **melt**. The required vapors then pass through an opening in the container, over the surface of the **melt**, and out through an opening in the crucible. The whole furnace can also be filled with the vapor, or vapor can be led into the crucible from outside. The crystals can also be grown in the presence of the vapor from a **melt** contg. 1-4% by wt. of added Pb fluoride. The amt. of MnF_3 or CoF_3 required depends on the time necessary for crystal growth, but approx. 0.25-2% of the wt. of the charge is used. An excess is not harmful. A crude lump of the required material may be **melted** directly, but if Pb fluoride is to be added, the material must be powd. **Melts** contg. Pb fluoride reproducibly give crystals of which 95% can be used optically while absorption at .apprx.2000 A. is reduced. In this way e.g. **MgF_2 crystals** uniformly transparent for uv radiation may be prepd., BaF_2 and SrF_2 crystals particularly suitable for ir radiation, and also CaF_2 for uv and ir. In an example 450 parts of CaF_2 were placed in the crucible and 1 part of MnF_3 in the container under the lid. After closing the lid, the crucible and contents were placed in a furnace which was evacuated to <0.1 mm. Hg pressure. Heating was carried out for 18 hrs. until gas evolution had ceased and a **melt** had been obtained. The crucible was then lowered at 4 mm./hr. for 24 hrs. to a cooler zone. The temp. was then reduced to room temp. in 24 hrs. The whole cryst. mass obtained was free from coloration.

ST optical crystals growth; growth optical crystals; alkaline earth fluorides crystn; fluorides alkaline earth crystn

IT Alkaline earth fluorides
Rare earth fluorides
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(crystal growth of, color prevention in)

IT Discoloration
(of fluoride crystals, prevention of)

IT Crystal growth
(of fluorides, color prevention in)

IT 7783-46-2 7783-53-1 10026-18-3
RL: PRP (Properties)
(as color-preventing agents in crystal growth of fluorides)

IT 7783-40-6 7783-48-4 7787-32-8 7789-75-5, properties 13709-38-1
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(crystal growth of, color prevention in)

L2 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1978:144390 CAPLUS
DN 88:144390
TI Growth of nickel-doped **magnesium fluoride crystals** in self-sealing graphite crucibles
AU Reed, T. B.; Fahey, R. E.; Moulton, P. F.
CS Lincoln Lab., Massachusetts Inst. Technol., Lexington, MA, USA
SO Journal of Crystal Growth (1977), 42, 569-73
CODEN: JCRGAE; ISSN: 0022-0248
DT Journal
LA English
CC 75-1 (Crystallization and Crystal Structure)
AB Large Ni-doped **MgF2** single **crystals** of excellent optical quality were grown in self-sealing graphite crucibles by a vertical gradient freeze technique. The technique always yields single crystals with excellent optical qualities and should be applicable to the **melt** growth of other crystals that are too volatile for open systems.
ST growth nickel magnesium fluoride
IT **Crystal** growth
(of **magnesium** nickel **fluoride**, in self-sealing graphite crucibles)
IT 7783-40-6D, solid solns. with nickel fluoride 10028-18-9D, solid solns. with **magnesium fluoride**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**crystal** growth of, in self-sealing graphite crucibles)

ANSWER 6 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1990:109156 CAPLUS
DN 112:109156
TI Manufacture of **magnesium fluoride crystals**
IN Motoba, Kazuhiko; Ono, Ryoichi; Sogo, Seiji
PA Nippon Mining Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C30B029-10
ICS C30B013-00; G02B001-02
CC 75-1 (Crystallography and Liquid Crystals)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 01115897	A2	19890509	JP 1987-273311	19871030
PRAI	JP 1987-273311		19871030		

AB The title process comprises repetition of vertical zone refining (e.g., at <10 mm/h) at a high temp. gradient in the vicinity of the m.p. (e.g., >18.degree./cm). The material may be filled into a glassy C crucible which is then sealed in a quartz tube together with Ar.
ST magnesium fluoride vertical zone **melting**
IT Zone **melting**
(of magnesium fluoride, vertical)
IT **Crystal** growth
(of **magnesium fluoride**, zone **melting**, vertical)
IT 7783-40-6, **Magnesium fluoride** (**MgF2**)
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**crystal** growth of, by vertical zone **melting**)

L4 ANSWER 3 OF 3 CAPLUS
AN 1979:566483 CAPLUS
DN 91:166483
TI Crystal growth by the thermic screen translation (TST) technique; a modified Bridgman method
AU Le Gal, H.; Grange, Y.
CS CEN, CEA, Grenoble, F-38041, Fr.
SO Journal of Crystal Growth (1979), 47(3), 449-57
CODEN: JCRGAE; ISSN: 0022-0248
DT Journal
LA English
CC 75-1 (Crystallization and Crystal Structure)
AB An in situ crystn. method called thermic screen translation (TST) technique is described. The method offers a great flexibility in adjusting temp. gradients during and after the **solidification** of the ingot. Provided that the furnace temp. distribution is precisely known, the TST technique has proved to be efficient in growing successfully various crystals such as ZnF2, CoF2, BaF2, MgF2, KY3F10, etc.
ST growth crystal thermic screen translation; **magnesium fluoride crystal** growth
IT Crystal growth
(by thermic screen translation technique)
IT 7783-40-6
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(crystal growth of, by thermic screen translation technique)

ANSWER 33 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1960:123646 CAPLUS

DN 54:123646

OREF 54:23571g-i

TI Properties of **MgF2, crystallized** from the **melt**

AU Duncanson, A.; Stevenson, R. W. H.

CS Aberdeen Univ., UK

SO Proceedings of the Physical Society, London (1958), 72, 1001-6
CODEN: PPSOAU; ISSN: 0370-1328

DT Journal

LA Unavailable

CC 2 (General and Physical Chemistry)

AB The phys. properties are summarized for birefringent **MgF2 crystals**, grown in vacuo by the Stockbarger technique, and suitable for polarizers in the ultraviolet and infrared regions. The m.p. is 1255 .+-. 3.degree.; crystal structure tetragonal SnO2-type, with lattice const. a = 4.621 .+-. 0.001A., and axial ratio 1:0.6601 .+-. 0.001, giving c = 3.050A. at 18.degree.. At 18.degree. the d. is 3.1766 .+-. 0.0002. The mean dielec. const. is 5.26. Refractive indices are tabulated for the ordinary and extraordinary rays at various wave lengths in the visible spectrum. The transparent region extends from 1360 cm.-1 to 1100A., whereas the infrared reflectivity begins to rise at 620 cm.-1, with a peak around 500 cm.-1 There is an absorption band at 2550A.

IT Refraction or Refractive index
(double, by MgF2)

IT **Crystal** structure
Dielectric constants
Infrared spectra
Ultraviolet and visible, spectra
(of **magnesium fluoride**)

IT 7783-40-6, Magnesium fluoride
(physicochem. properties of)